REMARKS

Claims 1, 3 and 8 are active. Claim 3 is objected to. Claims 1, 3 and 8 are rejected under 35 USC 103 as being unpatentable over Kasai in view of Mutsaers.

Claim 3 is amended to meet the objections thereto based on formal matters. The Action suggests a change to claim 3. However, applicants believe that suggested change is not grammatically or technically correct. The claim is suggested to read - - overlapping one source/drain electrode- -. This is not clear. The specification at page 3, line 5 states that the gate electrode overlaps the source electrode of the charging transistor. At page 3, line 8, the specification states in the alternative the gate electrode overlaps the drain electrode of the charging transistor. At page 5, line 29, the gate electrode can overlap the source or the drain electrode. Therefore, the specification makes it clear that the gate electrode may overlap one of the drain and source electrodes of the charging transistor. The suggested change to this claim does not clearly state this. Claim 3 is amended to more accurately state the involved relationship of the gate electrode to the drain and source electrodes. This basis of the objection is believed met and should be withdrawn.

Claims 1, 3 and 8 are submitted for the examiner's reconsideration.

Claim 1 is not suggested, disclosed or otherwise made obvious by any of the cited references of record including Kasai or Mutsaers, taken individually or in combination. Claim 1 calls for:

> at least one organic charging field effect transistor (charging FET) on a substrate, . . . <u>the drain-source electrodes of the charging and switching transistors being arranged to be coupled in series between a voltage source and a reference potential</u> such that <u>the gate electrode of the charging FET is not connected via an electrical line directly to the voltage source, to the reference potential, to the</u>

input or to the output, wherein the gate electrode of the charging FET is directly capacitively coupled to one of the source/drain electrodes of the charging FET (underlining added)

Kasai is asserted as disclosing the claimed drain-source electrodes of the charging and switching transistors being arranged to be coupled in series between a voltage source and a reference potential. There is no support in Kasai for this statement. The so called charging transistor is asserted as being Tr1 and the switching transistor as Tr4, Fig. 4.

Fig. 4 of Kasai does not show this arrangement. The source-drain electrodes of Tr4 are shown connected in series with source-drain electrodes of Tr1. But Tr1 is not a charging FET as claimed, but a driving FET. See Kasai [0072] line 5. Tr2 is stated to be a charge controlling transistor, same paragraph, lines 9-10, which Tr2 controls the charge to the capacitance element 2. Therefore, Tr2 is the charging FET and not Tr1.

Further, the source-drain (S/D) electrodes of the so called charging transistor (Tr1), which is not a charging transistor as noted above, and the switching transistor (Tr4) are asserted as being coupled in series between a voltage source and a reference potential. This too is not true in Kasai. In Kasai, the S/D electrodes of Tr1 are connected to point B having a voltage V_3. Voltage V_3 is not a reference potential. In Kasai Fig. 5, V_3 is shown as having various stepped values which shift in value from V_3 to V_{th}. Neither of which is a reference potential or ground.

The term "reference potential" is a term of art in the electronics art meaning ground or common. A ground potential is unchanging at all times. See the attached Wikepedia article on "Voltage," page 2, paragraph "Voltage with respect to a common point." Here it is stated that "it is understood that the voltage is usually being specified

or measured with respect to stable and unchanging point in the circuit that is known as ground or common." That stable and unchanging point, ground or common is also referred to in the electronics art as having a reference potential. A reference potential is stable and unchanging. See applicants' Figs. 1 and 2 where the electrode 6 of one of the transistors is connected to ground or common represented by the horizontal line normal to the line representing the electrode. In contrast, the voltage V_3 of Kasai is not at ground potential, but changes in value to V_{th}, also not ground since Fig. 5 expressly refers to a reference potential or ground as GND as shown. Therefore, this aspect of claim 1 also is missing in Kasai.

However, claim 1 calls for more. It calls for:

> the gate electrode of the charging FET is not connected via an electrical line directly to the voltage source, to the reference potential, to the input or to the output

Since Tr2 is the charging FET of Kasai, its gate electrode is shown connected to a voltage source V_{SEL} and also to the gate electrode of transistor Tr3. This clause of claim 1 also is missing in Kasai. Even if Tr4 is construed as the charging transistor, which the Action admits is the switching transistor and not the charging transistor, the gate thereof while not shown connected to a conductor is in fact turned on by a data holding control signal V_{gp}. Page 1, [0010] line 3 from the bottom of the paragraph, and thus is also connected to a voltage source. Also, the gate of the so called charging transistor Tr1, which is also not a charging transistor as explained above, is connected to a voltage V_2, Fig. 4, contrary to the claim and is not arranged as claimed as asserted by the Action. Mutsaers is cited for disclosing an organic transistor constructed as

claimed and is missing the claimed structures discussed above. Claim 1 is believed allowable.

Claims 3 and 8 depend from claim 1 and are believed allowable for at least the same reasons.

Since claims 1, 3 and 8 have been shown to be in proper form for allowance, such action is respectfully requested.

No fee is believed due for this paper. However, the Commissioner is authorized to respectively charge or credit deposit account 03 0678 for any under or overpayments in connection with this paper.

Respectfully submitted,
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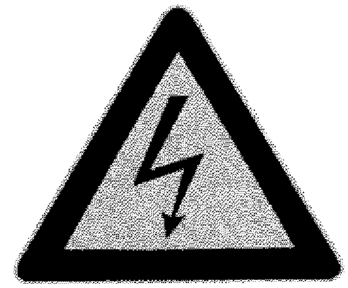
Voltage

From Wikipedia, the free encyclopedia

Electrical tension (or **voltage** after its SI unit, the *volt*) is the difference of electrical potential between two points of an electrical or electronic circuit, expressed in volts.[1] It is the measurement of the potential for an electric field to cause an electric current in an electrical conductor. Voltage is a property of an electric field, not individual electrons. Voltage, as a definition, can more easily be described as a representation of the "carrier" of electrons. Depending on the difference of electrical potential it is called extra low voltage, low voltage, high voltage or extra high voltage. Specifically, voltage is equal to energy per unit charge.[2]



International safety symbol "Caution, risk of electric shock" (ISO 3864), colloquially known as **High voltage**.

Contents

Explanation

Between two points in an electric field, such as exists in an electrical circuit, the difference in their electrical potentials is known as the electrical potential difference. This difference is proportional to the electrostatic force that tends to push electrons or other charge-carriers from one point to the other. Potential difference, electrical potential, and electromotive force are measured in volts, leading to the commonly used term *voltage*. Voltage is usually represented in equations by the symbols V, U, or E. (E is often preferred in academic writing, because it avoids the confusion between V and the SI symbol for the volt, which is also V.)

Electrical potential difference can be thought of as the ability to move electrical charge through a resistance. At a time in physics when the word *force* was used loosely, the potential difference was named the electromotive force or **EMF**—a term which is still used in certain contexts.

An electron moving across a voltage difference experiences a net change in energy, often measured in

electron-volts. This effect is analogous to a mass falling through a given height difference in a gravitational field. When using the term 'potential difference' or voltage, one must be clear about the two points between which the voltage is specified or measured. There are two ways in which the term is used. This can lead to some confusion.

Voltage with respect to a common point

One way in which the term voltage is used is when specifying the voltage of a point in a circuit. When this is done, it is understood that the voltage is usually being specified or measured with respect to a stable and unchanging point in the circuit that is known as ground or common. This voltage is really a voltage difference, one of the two points being the reference point, which is ground. A voltage can be positive or negative: "high" or "low" voltage may refer to the magnitude (the absolute value relative to the reference point). Thus, a large negative voltage can be described as a high voltage, although some writers do refer to negative voltages as "lower".

Voltage between two stated points

Another usage of the term "voltage" is in specifying how many volts are dropped across an electrical device (such as a resistor). In this case, the "voltage," or, more accurately, the "voltage drop across the device," is really the first voltage taken, relative to ground, on one terminal of the device minus a second voltage taken, relative to ground, on the other terminal of the device. In practice, the voltage drop across a device can be measured directly and safely using a voltmeter that is isolated from ground, provided that the maximum voltage capability of the voltmeter is not exceeded.

Two points in an electric circuit that are connected by an "ideal conductor," that is, a conductor without resistance and not within a changing magnetic field, have a potential difference of zero. However, other pairs of points may also have a potential difference of zero. If two such points are connected with a conductor, no current will flow through the connection.

Addition of voltages

Voltage is additive in the following sense: the voltage between A and C is the sum of the voltage between A and B and the voltage between B and C. The various voltages in a circuit can be computed using Kirchhoff's circuit laws.

When talking about alternating current (AC) there is a difference between instantaneous voltage and average voltage. Instantaneous voltages can be added as for direct current (DC), but average voltages can be meaningfully added only when they apply to signals that all have the same frequency and phase.

Hydraulic analogy

If one imagines water circulating in a network of pipes, driven by pumps in the absence of gravity, as an analogy of an electrical circuit, then the potential difference corresponds to the fluid pressure difference between two points. If there is a pressure difference between two points, then water flowing from the first point to the second will be able to do work, such as driving a turbine.

This *hydraulic analogy* is a useful method of teaching a range of electrical concepts. In a hydraulic system, the work done to move water is equal to the pressure multiplied by the volume of water moved. Similarly, in an electrical circuit, the work done to move electrons or other charge-carriers is equal to 'electrical pressure' (an old term for voltage) multiplied by the quantity of electrical charge moved. Voltage is a convenient way of quantifying the ability to do work. In relation to electric current, the